

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: David L. Kaplan et al.

Application No.: 10/536,810

Filed: September 19, 2006

For: ANTIOXIDANT-FUNCTIONALIZED POLYMERS

Confirmation No.: 4571

Art Unit: 1609

Examiner: Macauley, Sheridan R.

I hereby certify that this correspondence is being filed with U.S. Patent and Trademark Office via EFS-Web on the date shown below.

Dated January 9, 2009

Signature: 

(Thomas J. Engellenner)

**PERSONAL INTERVIEW SUMMARY**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir/Madam:

Applicants thank Examiner Macauley for the courtesy of a personal interview with the undersigned and Reza Mollaaghababa, Ph.D., as Applicants' representatives on December 3, 2008 to discuss the status of the above-referenced patent application. During the interview, Applicants' most recent response (filed December 1, 2008) was discussed. The undersigned reiterated Applicants' arguments in favor of patentability. It was noted that the claims were directed to a *two step process* for synthesizing antioxidant functionalized polymers in which *each step is catalyzed enzymatically*. In the first step, an antioxidant is *enzymatically coupled* to each of a plurality of molecules to form antioxidant-coupled monomers that are capable of forming an antioxidant-coupled functionalized polymer. In the second step, the antioxidant-coupled monomers are *enzymatically polymerized* to form the antioxidant-coupled functionalized polymer.

The Office Action of July 29, 2008 asserted that the claims were obvious in light of a combination of four references – Kuczkowski (*Rubber Chemical Technology*, 1984, 621-651), in view of Vermeiren (*Trends in Food Science and Technology*, 1999, 10: 77-86), Yan et al. (*Biotechnology Letters*, 1999, 21: 1051-4) and Kobayashi (*Chem Rev* 2001, 101: 3793-3818).

During the interview, Applicants' representative noted that none of the references taught or suggested the first of Applicants' steps, namely the *enzymatic coupling of an antioxidant to a monomer*. Specifically, it was noted that the only reference that was cited for this step (Yan) merely disclosed the enzymatic coupling of vitamin C to a fatty acid ester to improve solubility of the antioxidant. It was agreed that Yan provided no teaching of forming polymers – or even monomers suitable for polymerization. In fact it was noted Yan's technique involved linkage via a vinyl group which would destroy the only moiety that could yield a polymer.

Thus, the undersigned argued there would be no motivation to combine the references and any such combination would be inoperative.

Finally, it was noted that the amendment to the principal claim (claim 119) further clarified Applicants' contribution to the art, by reciting that the first step of the claimed method now entailed “*enzymatically coupling an antioxidant to each of a plurality of molecules to form antioxidant-coupled monomers capable of forming an antioxidant-coupled functionalized polymer...*” In view of the foregoing remarks and the previously submitted response, reconsideration of the rejections and allowance of all pending claims is respectfully requested.

Dated: January 9, 2009

Respectfully submitted,

By 

Thomas J. Engelenner

Registration No.: 28,711

NUTTER MCCLENNEN & FISH LLP

155 Seaport Boulevard

Boston, Massachusetts 02210-2604

(617) 439-2000

(617) 310-9000 (Fax)

Attorney for Applicant